

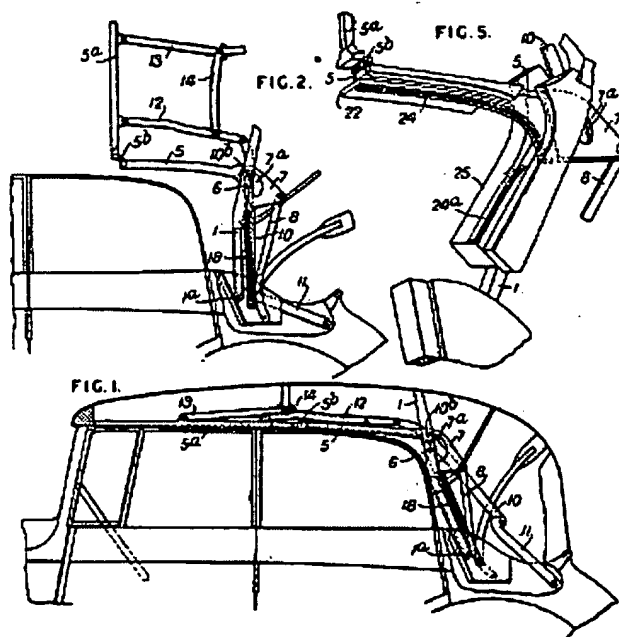
# Improvements in and connected with folding hoods for motor vehicles

**Patent number:** GB413467  
**Publication date:** 1934-07-19  
**Inventor:**  
**Applicant:** ERNEST METCALFE;; MARTIN WALTER LTD  
**Classification:**  
**- International:**  
**- european:** B60J7/12C10  
**Application number:** GB19330013496 19330509  
**Priority number(s):** GB19330013496 19330509

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## Abstract of GB413467

413,467. Vehicle hoods. METCALFE, E., 44, Alder Road, and WALTER, Ltd., M., 145, Sandgate Road, both in Folkestone. May 9, 1933, No. 13496. [Class 108 (i).] A hood for vehicles is provided with upper and rear frame members fold- able with the hood away from the upper and rear edges of the side windows, the said members con- stituting rigid body mem- bers partly framing the windows when the latter are in their raised position. The rear pillar 1 is pivoted to the body at 1<a> and inclines upwardly and for- wardly to abut on the rear edge of the window. The rear cantrail 5 is pivoted to the pillar 1 at 6 and has a rear extension 7 of trian- gular &c. shape which is linked to the body by link 8. The forward cantrail 5<a> is pivoted at 5b to the cantrail 5 and is also inter- connected by links 12-14 the link 12 being also pivoted to the member 10 of a pair of stretcher bars 10, 11 so that on folding by raising the cantrail 5a the stretcher bars 10, 11 are automatically broken and the pillar 1 and cantrail 5 move away from the window. A slot 7a to clear the pivot 10<b> and a compression spring 18 are provided. Wooden fittings 22, 21 are secured to the cantrail 5 and pillar 1 having steps with sealing strips 24, 24a to fit against the windows and give a pleasing appearance.



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## AMENDED SPECIFICATION

Reprinted as amended in accordance with the decision of the Superintending Examiner, acting for the Comptroller-General, dated the twenty-third day of July, 1935, under Section 21 of the Patents and Designs Acts, 1907 to 1932.

(The Amendments are shown in erased and italic type)

## PATENT SPECIFICATION

Application Date: May 9, 1933. No. 13496/33.

**413,467\***

Complete Specification Left: June 8, 1934.

Accepted: July 19, 1934.



## PROVISIONAL SPECIFICATION

### Improvements in and connected with Folding Hoods for Motor Vehicles

We, ERNEST METCALFE, a British Subject, of 44, Alder Road, Folkestone, and MARTIN WALTER LIMITED, a British Company, of 145 and 147, Sandgate Road, Folkestone, do hereby declare the nature of this invention to be as follows:—

This invention comprises improvements in and connected with folding hoods for motor vehicles and fittings therefor. The object of the invention is to provide a construction and arrangement of folding hood for motor vehicles which may be raised or lowered with the side windows in the raised position thus avoiding the necessity for lowering the windows when erecting or folding the hood and also avoiding the risk of damage to the windows which frequently occurs in folding hoods of present type due to accidental attempts to fold the hood when the windows are raised. A further object of the invention is to enable the folding hood to be easily and quickly raised or lowered from the interior of the vehicle and to enable it to be locked in the raised position without the necessity for alighting from the vehicle to operate the external stretchers or alternatively to break the joint in the stretchers when it is desired to lower the hood.

According to this invention the main hood pillars and cant rails are so mounted that in the operation of folding the hood they move in an upward and rearward direction away from the rear windows thus providing clearance to enable the hood fittings to fold without fouling the windows even when these are in the raised position.

In carrying the invention into practice the main hood pillars are pivoted to the rear of the window below the sill level so  
[Price 1/-]

that as they turn about their pivots they will move in an upward and rearward direction away from the rear edge of the window. The rear section of the cant rail is pivoted to the main hood pillar and is provided with a rearward extension which may be of a substantially triangular, quadri-lateral or other convenient shape to which is pivoted a link at a convenient distance behind the pivot by which the rear section of the cant rail is pivoted to the hood pillar. The other end of this link is pivoted to the body at a convenient position preferably behind and below the pivot by which the hood pillar is mounted on the vehicle body. This link acts as a control link to effect and control the movement of the rear section of the cant rail so that it will move in unison with the hood pillar, and as the latter moves upward and away from the window so will the rear section of the cant rail move upwardly from the window and also backwardly with the movement of the hood pillar until a position is reached at which the hood may fold without the cant rail fouling the raised window.

The forward section of the cant rail is hinged in the usual way to the rear section, and suitable links are provided to interconnect the forward section of the cant rail with either internal or external stretchers. This connection is so arranged that the upward movement of the forward section of the hood will break the knuckle or toggle joint in the stretchers thus enabling the hood to fold as a whole and avoiding the necessity for operating the stretchers independently by hand. In the same way in raising or opening the hood the last downward movement of the forward part thereof will bring the stretchers

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into the locked position so as to distend the hood-covering and retain the fittings in the erected position. The forward part of the hood or the cant rail may be secured to the screen pillars or other parts of the body in the usual manner. This connection to the screen pillar need be the only lock which is required to be released for folding the hood or to be secured for retaining it in the erected position.

A suitable arrangement of the link mechanism connecting the forward part of the cant rail with the rear part and hood pillar may comprise a suitable short link or lever connected to the upper pivot of the hinged side stretchers either rigidly or so as to provide a limited amount of independent movement. This short link or lever projects in a forward direction and is pivoted to one end of a link, the forward end of which is pivoted in turn to the forward section of the cant rail at a convenient distance in advance of the point at which it is pivoted to the rear section of the cant rail. The arrangement is such that as the forward section of the hood is raised the link connected thereto will turn the short link or lever about its pivotal connection to the upper section of the pivoted side stretcher causing this also to turn about its upper pivot thus breaking the knuckle joint between the two sections of the side stretcher. Additional links may also be provided between the forward section of the cant rail and the link which extends to the lever connected to the side stretcher. At the junction between these additional links may be supported a transverse hood stick. A hood stick may also extend across between the two main hood pillars and additional hood sticks may be provided at other convenient positions if so desired. A rear hood stick may be pivoted about the same pivot on which the main hood pillars are mounted or at any other convenient positions. The length and shape of this rear hood stick may be so arranged as to provide a pronounced drop to the rear of the hood thus enabling a pleasing contour

to be obtained.

For the purpose of obtaining a pleasing effect which will blend with the general lines of the hood when erected, the upper rear corner of the rear window may be curved or shaped to a convenient outline which will blend nicely with the general contour of the hood. This also provides additional clearance to facilitate folding of the hood without fouling the window when in the raised position.

The main hood pillars and cant rails are preferably constructed in metal superimposed in members of wood or other suitable material which may be suitably grooved or provided with packing strips or otherwise constructed to enable substantial draught, weathertight and rattle-proof joints to be made between these parts and the windows. In one arrangement the wood or other member may be suitably shaped to form a contour and rebate, providing a housing for the windows to accurately fit into same. This enables all weathering strips, fillets and such parts to be integral with the main hood pillar and cant rail construction.

It is to be understood that in describing the fittings of our improved folding hood that such fittings will in general be duplicated on both sides of the vehicle body.

Folding hoods for motor vehicles constructed and arranged according to our invention may be lowered or raised without lowering either of the rear windows. The hood may also be lowered or raised from the interior of the car and may be arranged so that the side stretchers will be operated automatically without the necessity for alighting from the vehicle to work them by hand. The hood may be constructed to provide a pleasing contour and will be easy to operate and will be durable, weatherproof and should remain free from rattles.

Dated this 9th day of May 1933.

RAYNER & CO.,  
5, Chancery Lane, London, W.C.2,  
Agents for the Applicants.

#### COMPLETE SPECIFICATION (AMENDED).

#### Improvements in and connected with Folding Hoods for Motor Vehicles

We, ERNEST METCALFE, a British Subject, of 44, Alder Road, Folkestone, and MARTIN WALTER LIMITED, a British Company, of 145 and 147, Sandgate Road, Folkestone, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the

following statement:—

This invention comprises improvements in and connected with folding hoods and fittings therefor for motor vehicles and fittings therefor of the kind having two or four doors and having slidable glass side windows without foldable or detachable guides therefor and in which the whole of

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the hood is adapted to fold down. The chief object of the invention to provide a construction and arrangement of folding hood for such motor vehicles which may be readily raised or lowered with little exertion and with a smooth and balanced movement of the various parts. Another object of the invention is to obviate the necessity for lowering the windows when erecting or folding the hood and also avoiding the risk of damage to the windows which frequently occurs in folding hoods of present type due to attempts to fold the hood when the windows are raised. A further object of the invention is to enable the folding hood to be easily and quickly raised or lowered from the interior of the vehicle and to enable it to be locked in the raised position without the necessity for alighting from the vehicle to operate the external stretchers or alternatively to break the joint in the stretchers when it is desired to lower the hood.

Broadly the present invention is characterised by providing upper and rear frame members foldable with the hood away from the upper and rear edges of side windows of the vehicle when said windows are in the closed position, the said frame members being adapted to constitute rigid body members partly framing the windows when the windows are raised or in the closed position.

According to the preferred form of this invention the main hood pillars and cant rails are so mounted that in the operation of folding the hood they move in an upward and rearward direction away from the rear windows thus providing clearance to enable the hood fittings to fold without fouling the windows even when these are in the raised position.

In order that this invention may be clearly understood and readily carried into effect we have appended hereto two sheets of drawings illustrating an embodiment thereof, and wherein:—

Figs. 1, 2 and 3 are side elevation views showing respectively the hood elements in the extended, partly folded and completely folded positions.

Fig. 4 is a detail rear perspective view showing the elements in the position represented in Fig. 2.

Fig. 5 is a perspective view looking at the said elements in the opposite direction, and

Fig. 6 shows a balancing spring forming part of the said elements.

Referring to the drawings the main hood pillars 1 are pivoted as at 1a to the rear of the window below the sill level 2 so that as they turn about their pivots they will move in a rearward direction

away from the rear edge of the window. The first part of this movement also is upwards because the upper ends of the pillars 1 are inclined forwardly when in the erected position. The pivot 1a is supported in a metal box or bracket 3 shaped to provide a recess or socket 2a into which the pillar 1 fits snugly when in the erected position so as to provide effective positioning and lateral support. The rear section 5 of the cant rail is pivoted to the main hood pillar at 6 and is provided with a rearward extension 7 which may be of a substantially triangular, quadri-lateral or other convenient shape to which is pivoted at 8a a link 8 at a convenient distance behind the pivot 6 by which the rear section 5 of the cant rail is pivoted to the hood pillar. The other end of this link 8 is pivoted at 8b to the body at a convenient position preferably behind and below the pivot 1a by which the hood pillar 1 is mounted on the vehicle body. This link 8 acts as a control link to effect and control the movement of the rear section 5 of the cant rail so that it will move in unison with the hood pillar, and as the latter moves upward and away from the window so will the rear section 5 of the cant rail move upwardly from the window to the position shown in Fig. 2 and also backwardly with the movement of the hood pillar when a position is reached at which the hood may fold without the cant rail fouling the raised window.

The forward section 5a of the cant rail is hinged as at 5b in the usual way to the rear section, and suitable links are provided to interconnect the forward section of the cant rail with either internal or external stretchers. This connection is so arranged that the upward movement of the forward section of the hood carried by the rails 5a will break the knuckle or toggle joint 9 in the stretchers 10 and 11 thus enabling the hood to fold as a whole and avoiding the necessity for operating the stretchers 10 and 11 independently by hand. In the same way in raising or opening the hood the last downward movement of the forward part thereof will bring the stretchers into the locked position so as to distend the hood-covering and retain the fittings in the erected position. The forward part of the hood or the cant rail 5a may be secured to the screen pillars or other parts of the body in the usual manner. This connection to the screen pillar need be the only lock which is required to be released for folding the hood or to be secured for retaining it in the erected position. The stretchers 10 and 11 lie close to the plane of the member 1 and in the rear of a wooden frame

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member 25 (hereinafter described) carried by said member 1 so that the stretchers are inside the outer covering of the hood and are obscured.

5 A suitable arrangement of the link mechanism connecting the forward part 5a of the cant rail with the rear part 5 and hood pillar 1 may comprise a suitable link 12 connected to the upper pivot 10a of the hinged side stretchers 10, 11. This link 12 projects in a forward direction and is pivoted as at 12a to the forward section 5a of the cant rail at a convenient distance in advance of the point 5b at which it is pivoted to the rear section of the cant rail. The arrangement is such that as the forward section 5a of the hood cant rail is raised the link 12 connected thereto will turn the upper side stretcher member 10 about a pivot 10b which can be a pin or bolt and is carried by the pillar 1 between its upper end and the pivot 6. This turning movement causes the stretchers 10 and 11 to break the knuckle joint between them. Additional links 13 and 14 may also be provided between the forward section 5a of the cant rail and the link 12 which extends to the side stretcher. At the junction between these additional links may be supported a transverse hood stick 15. A hood stick may also extend across the upper end of the two main hood pillars 1 and additional hood sticks may be provided at other convenient positions if so desired. A rear hood stick 21 may be pivoted about the same pivot 16 as the lower retaining member 17 of a coiled compression spring 18, the upper retaining member 19 being pivoted at 19a to a rearward lug 20 of the pillar 1, the pivots 16 and 19a being located so that the axis of the spring 18 is parallel with and close to the pillar 1. By this arrangement the spring 18 is placed under increasing compression as the hood is being folded as will be apparent by reference to Fig. 3. This provides a resilient cushioning medium and also assists in maintaining the hood in the extended position. Semi-circular section guide rods 17a and 19b are carried by the members 17 and 19 to maintain a straight axis for the spring 18.

For the purpose of obtaining a pleasing effect which will blend with the general lines of the hood when erected, the upper rear corner 4a of the rear window (see Fig. 2) may be curved or shaped to a convenient outline which will blend nicely with the general contour of the hood. This also provides additional clearance to facilitate folding of the hood without fouling the window when in the raised position.

65 The main hood pillars and cant rails

are preferably constructed in metal superimposed in members of wood or other suitable material which may be suitably grooved or provided with packing strips or otherwise constructed to enable substantial draught, weathertight and rattle-proof joints to be made between these parts and the windows. In one arrangement the wood or other member may be suitably shaped to form a contour and rebate, providing a housing for the windows to accurately fit therein. This enables all weathering strips, fillets and such parts to be integral with the main hood pillar and cant rail construction. Such an arrangement is shown more clearly in Figs. 4 and 5 in which the cant rail 5 is a channel section metal bar with the channel uppermost and formed with lateral lugs along its lower edge to which is secured by screws a wood frame member 22 formed with a step 23 along its base over the edge of which step projects slightly a sealing strip 24 to engage the inner face of the window near its upper edge. The step 23 is carried rearwardly beyond the rear end 22a of the wooden member 22 and shaped to overlap the arcuate corner 4a of the window 4. The rear end 22a of the member 22 is adapted to abut against the free end 25a of a forwardly directed upper end of a wooden member 25 which has a thick L-section and is fixed to the member 1, one limb lying against the front edge of the main member 1 and the other limb lying against the outer face of the member 1. The member 1 is also of channel section metal and the triangular rear part 7 of the cant rail 5 is composed of two parallel plates formed in continuity with and the same vertical planes as the side limbs of the rail 5. An arcuate slot 7a is cut in these two plates to clear the pivot member 10b. The vertical front face of the wooden member 25 is fitted with a packing strip 24a located in the same vertical plane as the strip 24 so as to overlap the rear vertical edges of the window 4. The metal box 3 which carries the pivot members 1a, 16 and 8b is secured by screws to the fixed body members 26 and 27 of the vehicle.

It is to be understood that in describing the fittings of our improved folding hood that such fittings will in general be duplicated on both sides of the vehicle body.

Folding hoods for motor vehicles constructed and arranged according to our invention may be lowered or raised without lowering either of the rear windows. The hood may also be lowered or raised from the interior of the car and may be arranged so that the side stretchers will be operated automatically without the

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necessity for alighting from the vehicle to work them by hand. The hood may be constructed to provide a pleasing contour and will be easy to operate and will be durable, weatherproof and should remain free from rattles.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

(1) In a folding hood for a motor vehicle of the kind described upper and rear frame members foldable with the hood away from the upper and rear edges of side windows of the vehicle when said windows are in the closed position, the said frame members being adapted to constitute rigid body members partly framing the windows when the windows are raised or in the closed position.

(2) In a folding hood for a motor vehicle of the kind described the provision of main hood pillars and cant rails formed with or carrying parts shaped and adapted to lie around upper and rear edges of side windows of the vehicle said pillars and rails being movable respectively away from the rear and upper edges of the said windows when said windows are in the closed position and when the hood is moved from the erected or closed to the folded or open position.

(3) A folding hood for a motor vehicle of the kind described comprising each side of the hood a main pillar pivoted at its end to a part of the body and inclined forwardly and upwardly against the rear edge of a side window, a cant rail pivoted near its rear end to said pillar near the upper end of the pillar, and adapted to lie against the upper edge of said window and to be swung upwards about its pivotal

connection to said pillar, said cant rail having pivoted to its front end a linear extension, a pair of stretchers for the rear part of the hood having a knuckle joint connection to each other, one of said stretchers being pivoted between its ends to said pillar and pivoted at the end remote from the knuckle joint to a link connected to said extension of the cant rail.

(4) A folding hood according to claim 3 wherein said stretchers are located close to said pillar and inside the outer covering of the hood.

(5) A folding hood according to claim 2 or 3 wherein said main hood pillar and said cant rail carry parts formed with opposing or abutting ends and also parts which overlap uni-laterally, said parts being shaped to extend around a rear corner of a window and formed with window engaging sealing strips.

(6) A folding hood according to claim 3 wherein said cant rail is extended rearwardly beyond its point of pivotal connection to said pillar and is connected at its rear extremity to the upper end of a substantially vertical link, the lower end of which is pivoted to the vehicle body in rear of the pivot of said pillar.

(7) A folding hood according to claim 3 or 6 wherein a coiled compression spring is interposed between an abutment on said pillar near the pivot of the said cant rail and a point in rear of and near to the lower or pivoted end of said pillar.

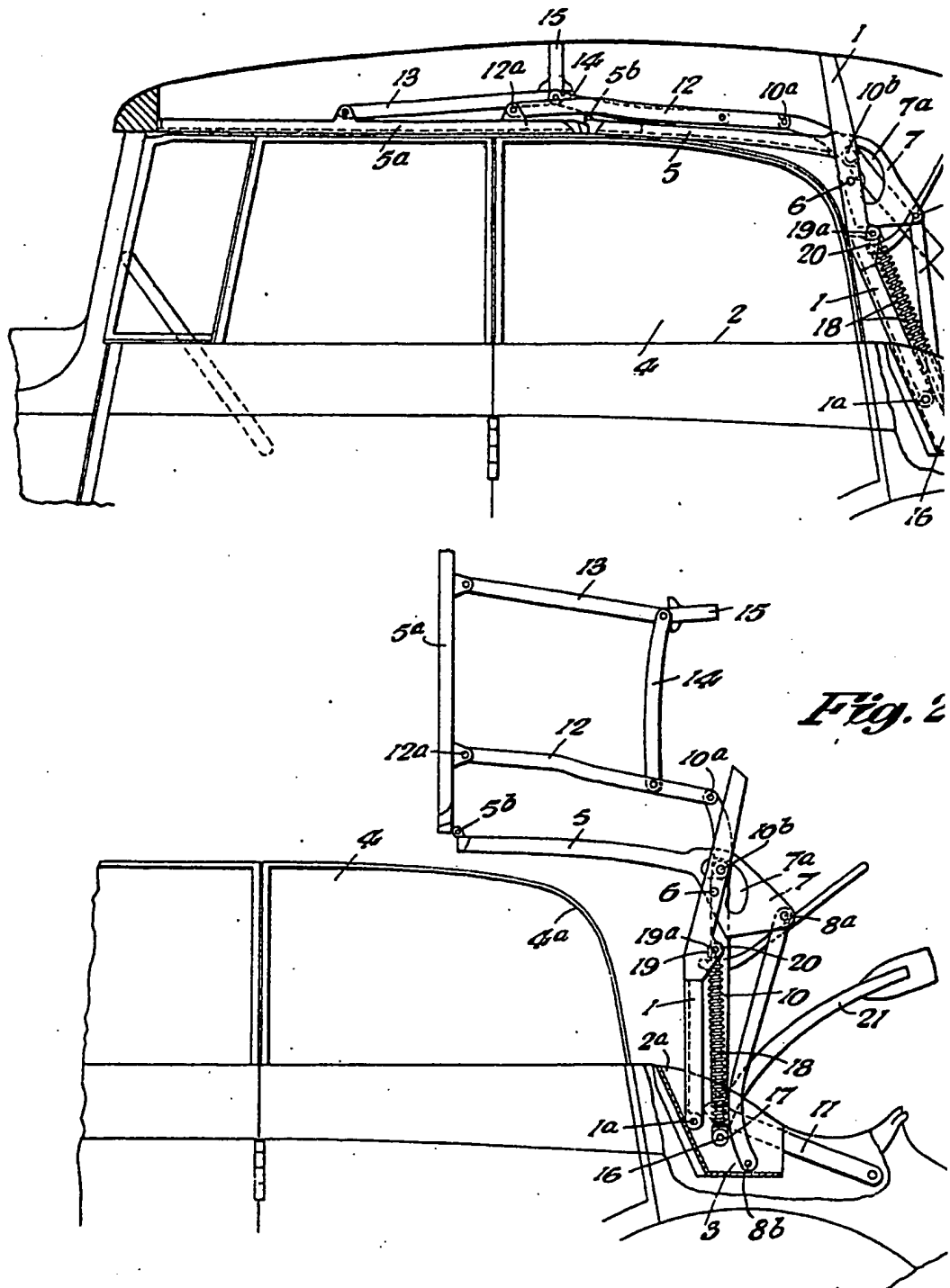
(8) A folding hood for a motor vehicle substantially as described with reference to the accompanying drawings.

Dated this 8th day of June, 1934.

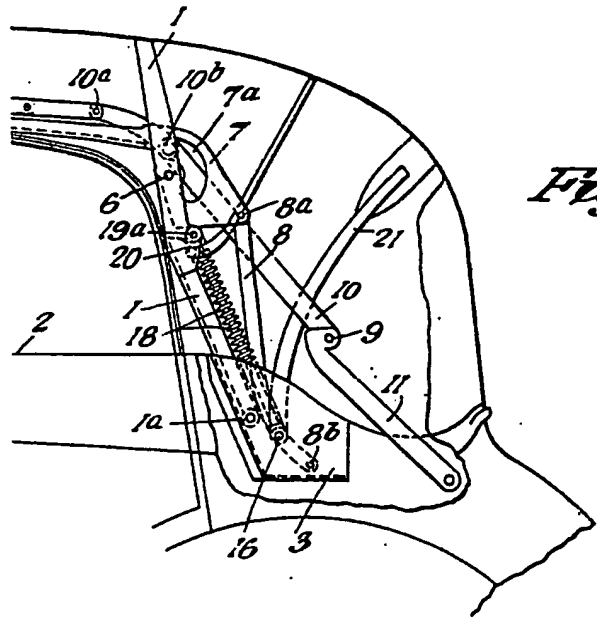
RAYNER & CO.,  
5, Chancery Lane, London, W.C.2,  
Agents for the Applicants.

## 413,467\* AMENDED SPECIFICATION

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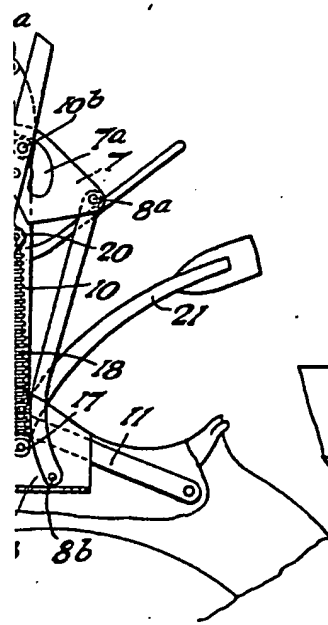
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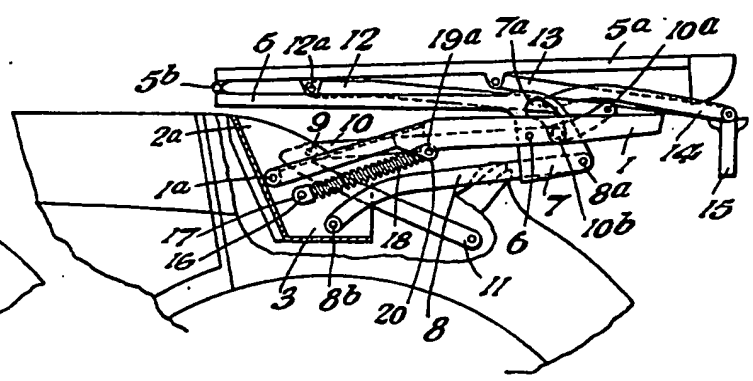
*Fig. 1.*

Fig. 15

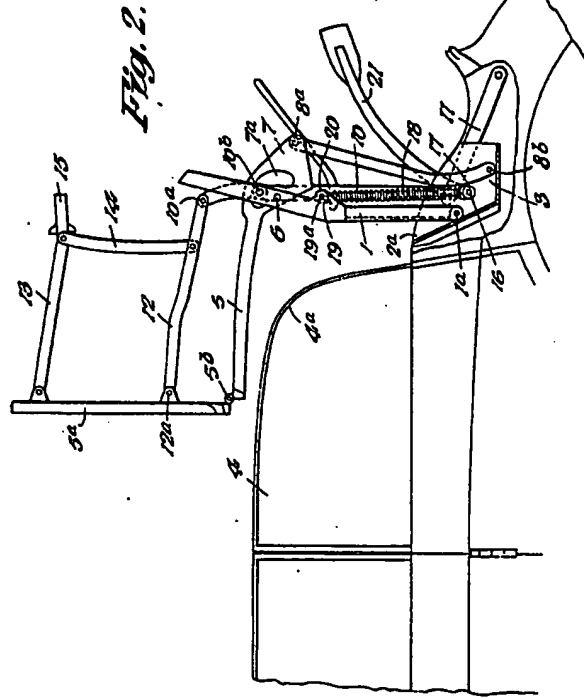
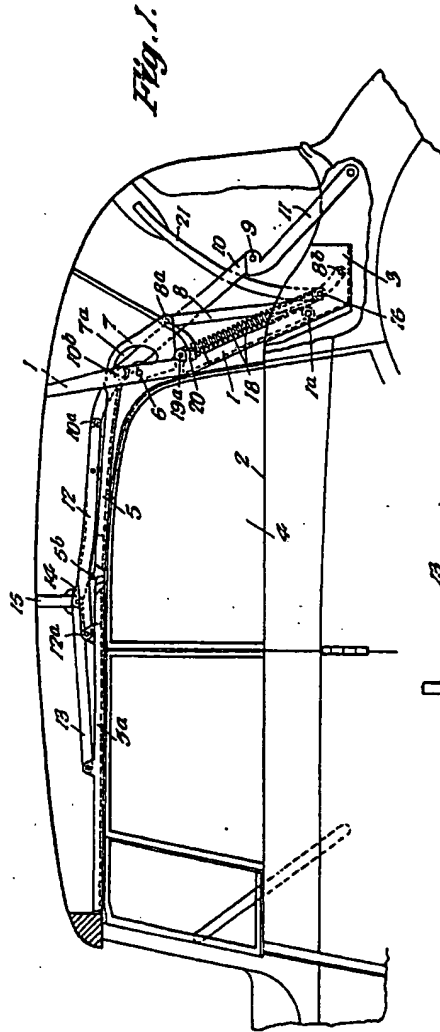
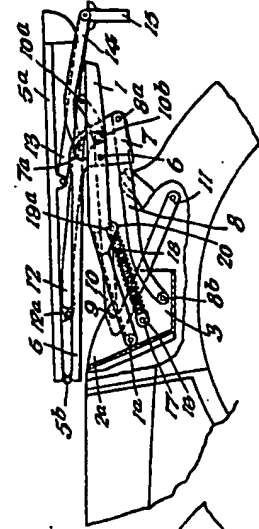
*Fig. 2.*



*Fig. 3.*





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SHEET 1413,467<sup>a</sup> AMENDED SPECIFICATION*Fig. 3.**[This Drawing is a reproduction of the Original on a reduced scale.]*

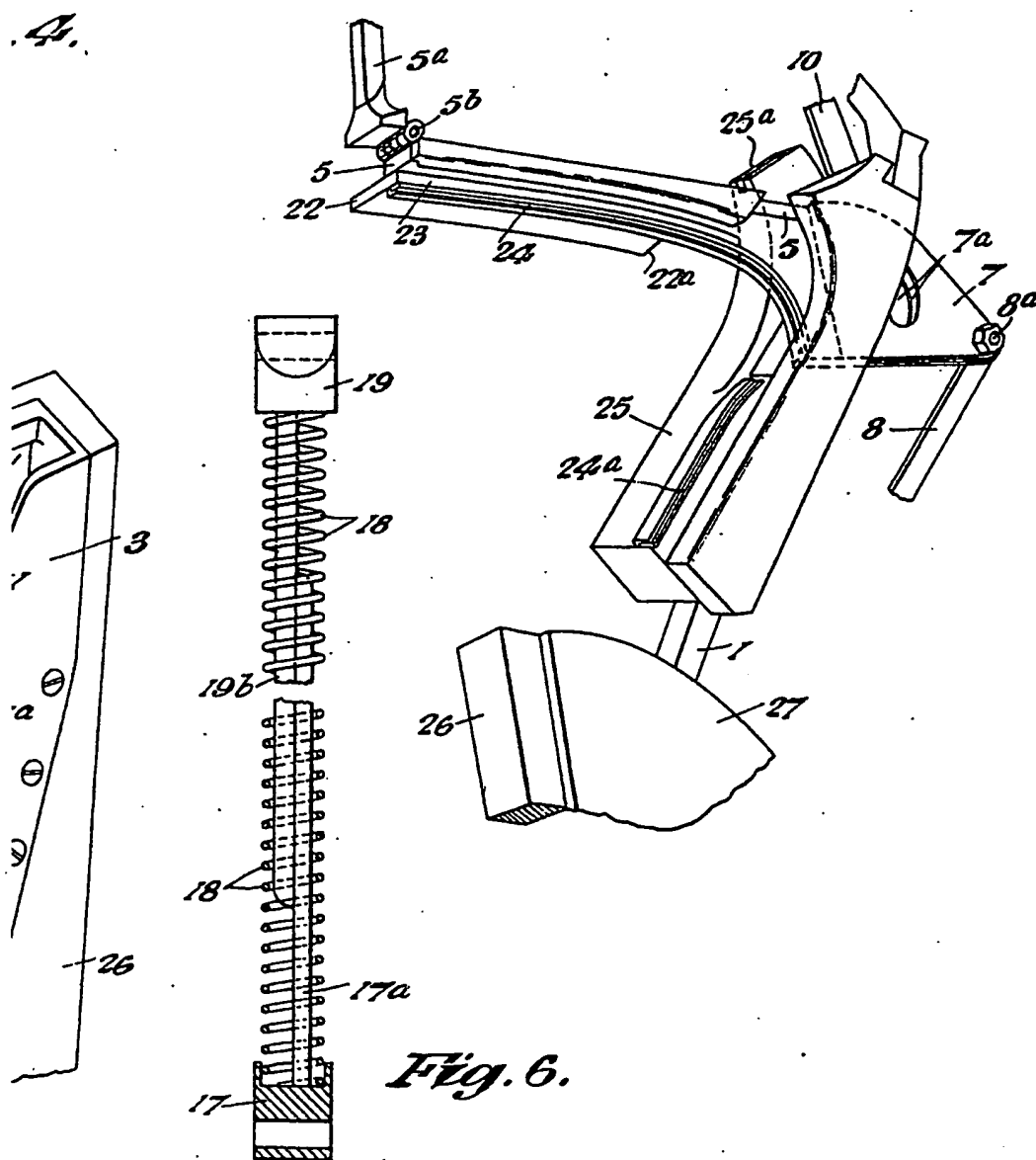
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*Fig. 5.*



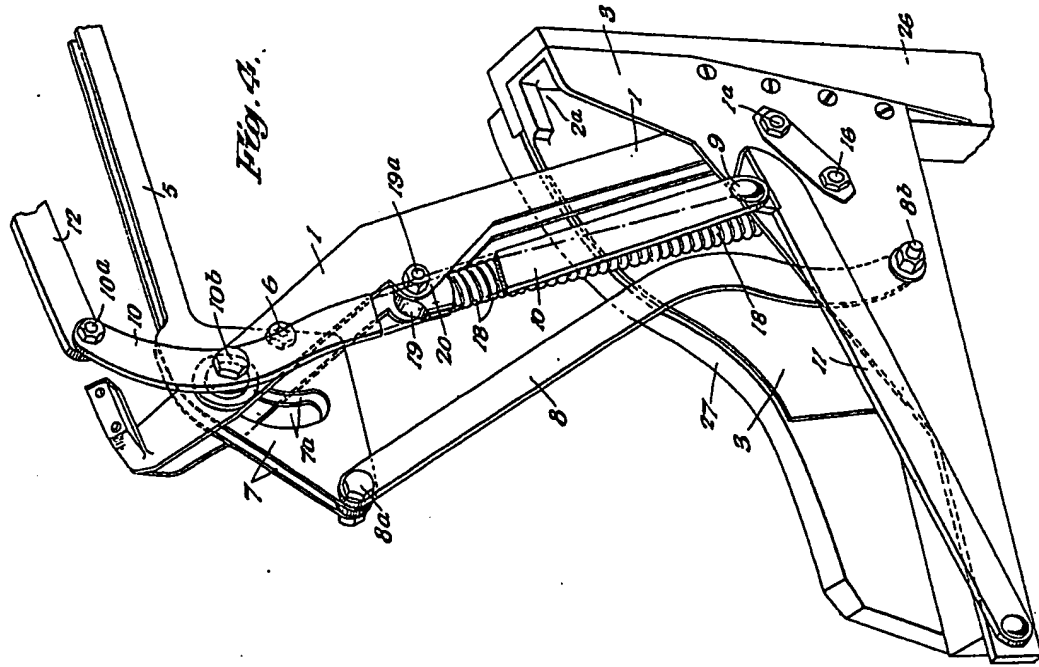
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Fig. 4.

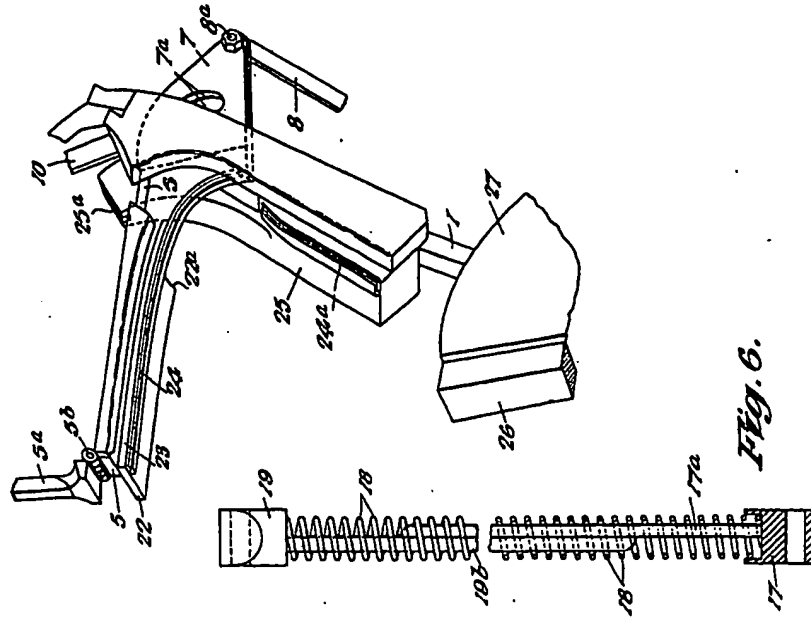


Fig. 5.

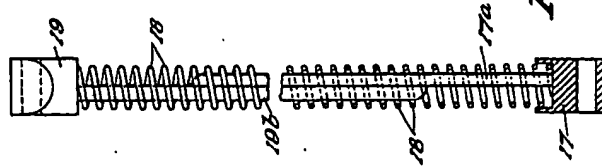


Fig. 6.

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